

Work Order No.: 18A0340

January 29, 2018

East Chicago Sanitary District 5201 Indianapolis East Chicago, IN 46312

Re: Industrial #901 010818

Dear Nickie Geros:

Microbac Laboratories, Inc. - Chicagoland Division received 2 sample(s) on 1/9/2018 11:20:00AM for the analyses presented in the following report as Work Order 18A0340.

The enclosed results were obtained from and are applicable to the sample(s) as received at the laboratory. All sample results are reported on an "as received" basis unless otherwise noted.

All data included in this report have been reviewed and meet the applicable project specific and certification specific requirements, unless otherwise noted. A qualifications page is included in this report and lists the programs under which Microbac maintains certification.

This report has been paginated in its entirety and shall not be reproduced except in full, without the written approval of Microbac Laboratories.

We appreciate the opportunity to service your analytical needs. If you have any questions, please contact your project manager. For any feedback, please contact Donna Ruokonen, Managing Director, at donna.ruokonen@microbac.com.

Sincerely,

Microbac Laboratories, Inc.

Dave Bryant Project Manager



Date:

**WORK ORDER SAMPLE SUMMARY** 

Client: East Chicago Sanitary District

Project: Industrial #901 010818

Lab Order: 18A0340

Lab Sample ID Client Sample ID **Tag Number Collection Date Date Received** 

18A0340-01 #901 01/08/2018 08:45 1/9/2018 11:20:00AM 18A0340-02 #901 01/08/2018 08:45 1/9/2018 11:20:00AM

Samples Subcontracted To: Microbac - BLT

Lab Sample ID **Client Sample ID Tag Number Collection Date Date Received** 01/08/2018 08:45

18A0340-02 #901 1/9/2018 11:20:00AM

Monday, January 29, 2018



CASE NARRATIVE Date: Monday, January 29, 2018

Client: East Chicago Sanitary District
Project: Industrial #901 010818

**Lab Order:** 18A0340

The Total Suspended Solid method residue requirement of 2.5 mg were not met for the following sample(s). Due

to sample matrix, additional sample volume could not be filtered.

<u>Laboratory ID</u> <u>Sample Name</u>

18A0340-01 #901

The Matrix Spike and Matrix Spike Duplicate failed the accuracy criteria for phenol with a low bias. The precision criteria were met. A Post Digestion Spike was performed and the acceptance criteria was not met, indicating sample matrix interference. The following sample was spiked:

<u>Laboratory ID</u> <u>Sample Name</u>

18A0340-01 #901

Cyanide 1677 Analysis

The cyanide 1677 analysis was subcontrated to Microbac Baltimore Division, Baltimore MD. Their results are incorporated into this report.



Analytical Results Date: Monday, January 29, 2018

Client: East Chicago Sanitary District

Client Project: Industrial #901 010818

 Client Sample ID:
 #901
 Work Order/ID:
 18A0340-01

 Sample Description:
 Sampled:
 01/08/2018
 8:45

 Sample Description:
 Sampled:
 01/08/2018
 8:45

 Matrix:
 Aqueous
 Received:
 01/09/2018
 11:20

Analyses	Certs	ΑT	Result	Limit	MDL	RL	Qual	Units	DF	Analyzed
				Method: EP	A 200.7 Re	ev 4.4			Ana	llyst:BTM
Total Recoverable Metals by ICP									Prep Date/T	ime:01/10/2018 07:36
Arsenic	dijl	Α	0.0085	0.5	0.0035	0.010	J	mg/L	1	01/10/2018 12:04
Chromium	dijl	Α	ND	0.282	0.00050	0.0030		mg/L	1	01/10/2018 12:04
Copper	dijl	Α	0.0012	0.17	0.00040	0.010	J	mg/L	1	01/10/2018 12:04
Lead	dijl	Α	ND	0.224	0.0032	0.0075		mg/L	1	01/10/2018 12:04
Molybdenum	dijl	Α	0.058	0.2	0.0016	0.020		mg/L	1	01/10/2018 12:04
Nickel	dijl	Α	0.0086	0.39	0.00080	0.010	J	mg/L	1	01/10/2018 12:04
Thallium	dijl	Α	ND	4.3	0.0037	0.050		mg/L	1	01/10/2018 12:04
Zinc	dijl	Α	0.062	5.5	0.0029	0.020		mg/L	1	01/10/2018 12:04
otal Mercury by CVAA				Method: EP	A 245.1 Re	ev 3.0				ılyst:BTM ïme:01/11/2018 11:26
Mercury	dilo	Α	0.00026	0.0002	0.000020	0.00020	*	mg/L	1	01/11/2018 14:28
hloride				Method: SN	1 4500-CI E	3-1997				llyst: <b>EF</b> ime: <b>01/12/2018 14:3</b> 5
Chloride	di	Α	2.5	0	1.0	1.0		mg/L	1	01/12/2018 14:35
hemical Oxygen Demand				Method: EP	A 410.4 Re	ev 2.0				llyst: <b>EF</b> ime: <b>01/15/2018 10:40</b>
Chemical Oxygen Demand	dio	Α	420	250	9.3	10	*	mg/L	1	01/15/2018 14:42
luoride				Method: SN	4500-F C	-1997 MOD	)			ilyst: <b>EF</b> ïme: <b>01/15/2018 13:02</b>
Fluoride	dijo	Α	1.1	2.9	0.010	0.10		mg/L	1	01/15/2018 13:02
litrogen, Ammonia as N				Method: EP	A 350.1 Re					llyst: <b>ABG</b> ime: <b>01/12/2018 11:50</b>
Nitrogen, Ammonia (As N)	dio	Α	29	77	0.54	1.0		mg/L	10	01/12/2018 14:07
otal Phosphorus as P				Method: EP	A 365.1 Re	ev 2.0				ilyst: <b>lachat3</b> ime: <b>01/11/2018 10:20</b>
Phosphorus, Total (As P)	dijo	Α	0.252	5.5	0.0450	0.200		mg/L	1	01/11/2018 14:43
otal Phenolics				Method: EP	A 420.4 Re	ev 1.0				llyst: <b>GRIEFF</b> ime: 01/10/2018 12:12
Phenolics, Total Recoverable	diljo	Α	0.040	0.7	0.0060	0.010		mg/L	1	01/10/2018 14:46
ulfate, Turbidimetric				Method: SN	4500 SO4	4 E-1997				llyst: <b>GRIEFF</b> ime: <b>01/12/2018 10:59</b>
Sulfate		Α	270	0	4.7	100		mg/L	10	01/12/2018 15:42
				Method: SN					Ana	ilyst: <b>TMG</b> ime: <b>01/09/2018 12:53</b>
otal Dissolved Solids	diio	Α	850	0	20	20		ma/l	1	01/09/2018 12:56
Total Dissolved Solids (Residue, Filterable)	dijo	A	000	0	20	20		mg/L	1	01/09/2018 12:56

Method: SM 2540 D-1997

Analyst: AJR
Prep Date/Time: 01/10/2018 05:48

**Total Suspended Solids** 

Microbac Laboratories, Inc.



Analytical Results Date: Monday, January 29, 2018

Client: East Chicago Sanitary District

Client Project: Industrial #901 010818

 Client Sample ID:
 #901
 Work Order/ID:
 18A0340-01

 Sample Description:
 Sampled:
 01/08/2018
 8:45

Matrix: Aqueous Received: 01/09/2018 11:20

Certs AT Result MDL RL **Analyses** Limit Qual Units DF Analyzed Method: SM 2540 D-1997 Analyst: AJR Prep Date/Time: 01/10/2018 05:48 **Total Suspended Solids** Total Suspended Solids dijo A 73 100 1.0 1.0 mg/L 01/10/2018 5:48



Analytical Results Date: Monday, January 29, 2018

Client: East Chicago Sanitary District

Client Project: Industrial #901 010818

Available Cyanide

 Client Sample ID:
 #901
 Work Order/ID:
 18A0340-02

 Sample Description:
 Sampled:
 01/08/2018
 8:45

Matrix: Aqueous Received: 01/09/2018 11:20

Analyses	Certs	AT	Result	Limit	MDL	RL	Qual	Units	DF	Analyzed	
		Method: EPA 1664B							Analyst: AJR		
Oil & Grease (HEM) by SPE									Prep Date/1	ime:01/10/2018 05:14	
Oil & Grease (HEM)	dij	Α	1.5	50	1.4	5.0	J	mg/L	1	01/10/2018 5:14	
	Method: EPA OIA-1677								Analyst: <b>ANC</b>		
Available Cyanide by Ligand Ex	change								Prep Date/T	ime: 01/15/2018 07:42	

0.003 0.00500

0.0200

mg/L

01/23/2018 14:20

2444 **0.144** 



#### FLAGS, FOOTNOTES AND ABBREVIATIONS (as needed)

- B = Detected in the associated method Blank at a concentration above the routine RL
- b- = Detected in the associated method Blank at a concentration greater than 2.2 times the MDL
- b\* = Detected in the associated method Blank at a concentration greater than half the RL

CFU = Colony forming units

D = Dilution performed on sample

DF = Dilution Factor

g = Gram

E = Value above quantitation range

H = Analyte was prepared and/or analyzed outside of the analytical method holding time

J = Analyte concentration detected between RL and MDL (Metals / Organics)

LOD = Limit of Detection

LOQ = Limit of Quantitation

m3 = Meters cubed

MDL = Method Detection Limit

mg/Kg = Milligrams per Kilogram (ppm)

mg/L = Milligrams per Liter (ppm)

NA = Not Analyzed

ND = Not Detected at the Reporting Limit (or the Method Detection Limit, if used)

NR = Not Recovered

R = RPD outside accepted recovery limits

RL = Reporting Limit

S = Spike recovery outside recovery limits

Surr = Surrogate

U = Undetected

> = Greater than

< = Less than

% = Percent

\* = Result exceeds project specific limits

## **ANALYTE TYPES: (AT)**

A,B = Target Analyte

I = Internal Standard

M = Summation Analyte

S = Surrogate

T = Tentatively Identified Compound (TIC, concentration estimated)

#### **QC SAMPLE IDENTIFICATIONS**

ICSA = Interference Check Standard "A" BLK = Method Blank DUP = Method Duplicate ICSAB = Interference Check Standard "AB" BS = Method Blank Spike BSD = Method Blank Spike Duplicate MS = Matrix Spike MSD = Matrix Spike Duplicate ICB = Initial Calibration Blank ICV = Initial Calibration Verification CCB = Continuing Calibration Blank CCV = Continuing Calibration Verification CRL = Client Required Reporting Limit OPR = Ongoing Precision and Recovery Standard SD = Serial Dilution

PDS = Post Digestion Spike

QCS = Quality Control Standard

### **CERTIFICATIONS (Certs)**

Below is a list of certifications maintained by the Microbac Merrillville Laboratory. All data included in this report has been reviewed for and meets all project specific and quality control requirements of the applicable accreditation, unless otherwise noted. Complete lists of individual analytes pursuant to each certification below are available upon request.

- d Illinois EPA drinking water, wastewater and solid waste analysis (#200064)
- F Florida NELAC (#E871126)
- i Kansas Dept Health & Env. NELAP (#E-10397)
- j Kentucky Wastewater Laboratory Certification Program (#90147)
- North Carolina DENR NPDES effluent, surface water (#597)
- N Commonwealth of Virginia (#460285)
- o Virginia Department of General Services Division of Consolidated Laboratory Services (#7990)



COOLER INSPECT	1	Date/Time Received								
Work Order Number:	18A0340		]	Receiv	ved by:	Samar	ntha Pa	aulus		
Checklist completed by:	1/9/2018 11:32:00AM	Samantha Paulus	]	Revie	wed by:	1/9/20	018	SE	)	
		Carrier Name:	- Microbac					-		
C	Cooler ID: Default Cooler			Con	tainer/Te	mp Blank	тетре	erature:	0.6° C	
Custody seals intact on COC present? COC included sufficient COC included sufficient COC included a sample COC agrees with sample COC identified the apple COC included date of COC included time of COC included time of COC identified the apple Samples in proper cont Sample containers inta Sufficient sample volunt All samples received w	a shipping container/cooler? a sample containers?  It client identification? It sample collector information It description? It labels? It description? It sample collector information It sample collector information It sample collector? It sample container It sample collector information It sample	s?		Yes	< < < < < < < < < < < < < < < < < < <	No N		Not Present Not Present Not Present		
	If No, adjusted	by?								
Cooler Comments:	quished and received? ee?			Yes Yes Yes Yes Yes Yes	V V V	No No No No No		No VOA vials 	submitted	<b>✓</b>
	lient Sample ID	Comments	CELEI(II)		10,1110	1.				
	901									
•	001									

East Chicago Sanitary District  East Chicago Sanitary District  East Chicago Sanitary District  East Chicago, IN 46312  District  East Chicago, IN 46312  Nickie Geros / Henry Padilla  Compliance Monite  Compliance Monite  1] Mail   J Telephone   J Fax (fax #)  RINT)  ECSD Staff  * Matrix Types: 30il/Solid (3), Sludge, Oil, Wipe, Drinking Water (DW), Grouterstrong treservative Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate,  Client Sample ID    (composite)   www   x     //	Fax: 219-769-8378  Fax: 219-769-1664  Fax: 219-769-1664  Fax: 317  Foation  Water (DW), Groundwater (GW), Surface Water (1), School of the configuration of	Fax: 317-872-1375 Fax: 317-872-1379  litoring  c Water (SW), Waste um Bisulfate, (8) Sodi inn Requested end Requested Of Preservative C Types ***	Number		Report Type [] Level III CLP-like [] Level IV CLP-like [] Level IV CLP-like [] S466 x240
East Chicago Sanitary District Project  5201 Indianapolis Blvd. Location  East Chicago, IN 46312 PO#  Nickie Geros / Henry Padilla Complianc  219-391-8466 (1) Agency/  ECSD Staff Sam    Mail     Telephone     Fax (fax #)  urix Types: Soil/Soild (S), Sludge, Oil, Wipe, Drinking Water (D)  utive Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc  iient Sample ID  **    Www   X   Www   X   X   X   X   X   X   X   X   X	Industrial Mon  The Monitoring? [] Yes [] No  Program  Impler Signature  W, Groundwater (GW), Surfac  Acetate, (6) Methanol, (7) Sodia	in Bisulfate, (8) Sod  Requested  Requested  Requested  Requested  Analyses  Analyses  Types **	Turnaround Time  RUSH* (noutify lab)  RUSH* (noutify lab)  (needed by)  Sampler Phone #  X] c-mail (address) ngeros@eastchii  Water (WW), Other (specify)  ilium Thiosulfate, (9) Hexane, (U) Unpr	Report   X   Results Only   1   Level III   1   Level III	ort Type  [] Level III CLP-like  [] Level IV CLP-like  [] Level IV CLP-like  [6 x240  sstchicago.com
East Chicago, IN 46312 PO #  Nickie Geros / Henry Padilla Complianc  219-391-8466 (1)Agency/  ECSD Staff Sa      Mail       Telephone       Fax (fax #)    artix Types: Soil/Soild (S), Sludge, Oil, Wipe, Drinking Water (D)  artix Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc  Silient Sample ID  **  WWW X  WWW X  WWW X  WWW X	Program  Mpler Signature  W), Groundwater (GW), Surfac  Acetate, (6) Methanol, (7) Sodii  Tinne Collected	E Water (SW), Waster um Bisulfate, (8) Sod and Breasted Analyses of Types **	RUSH* (nouify lab)  RUSH* (nouify lab)  (needed by)    Sampler Phone #   Sampler Pho	[X] Results Only [] Level III [] Level IV [X] EDD [X] EDD  escred  escred	[] Level III CLP-like [] Level IV CLP-like [] Level IV CLP-like 66 x240  sstchicago.com
East Chicago, IN 46312   PO #	Program  Mpler Signature  W), Groundwater (GW), Surfac  Acetate, (6) Methanol, (7) Sodi  Date Collected  (7) Sodi  (7) Time Collected	e Water (SW), Waster um Bisulfate, (§) Sod  Requested Analyses Of Types **  Z	(needed by)  Sampler Phone #  Sampler Ph	[] Level III [] Level IV [X] EDD  ago.com / Iwoicik@ea  cscrvcd  s,C,C,C,N,N,N,O,P,P,N,N,O,P,P,N,N,N,N,N,N,N,N,N	Level III CLP-like     Level IV CLP-like     Sex x240 
Nickie Geros / Henry Padilla   Compliance   219-391-8466   (1) Agency/   T)   ECSD Staff   Salin     Telephone     Fax (fax #)	Program  Mpler Signature  W), Groundwater (GW), Surfac  Worker (GW), Surfac  More Collected	e Water (SW), Waste um Bisulfate, (8) Sod Bequested Analyses Or Types **	Sampler Phone #  Sampler Phone #  X] c-mail (address) <u>Ingeros@eastchi</u> e Water (WW), Other (specify)  itum Thiosulfate, (9) Hexane, (U) Unpr  1  1  1  1  1  1  1  1  1  1  1  1  1	[] Level IV [X] EDD  219-391-84  ago.com / iwoicik@ea  cserved  cserved  An+H&	[] Level IV CLP-like 66 x240 sstchicago.com
T) ECSD Staff Sal      Mail       Telephone     Fax (fax #)     atrix Types: Soil/Soild (S), Sludge, Oil, Wipe, Drinking Water (D)     atrive Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc     Client Sample ID	Program  My, Groundwater (GW), Surfac  Acetate, (6) Methanol, (7) Sodi  My, Groundwater (GW), Surfac  Acetate, (5) Methanol, (7) Sodi  My, Groundwater (GW), Surfac  Acetate, (6) Methanol, (7) Sodi	E Water (SW), Waste um Bisulfate, (8) Sod and Breaketed Analyses of Types **	(needed by)  Sampler Phone #  X] c-mail (address) ngeros@eastchii  Water (WW), Other (specify)  ilum Thiosulfate, (9) Hexane, (U) Unpr  AS, TDS, T, COB, ANA  COB, ANA	ESCROTA NO. P. P. T. P.	66 x240 sstchicago.com
ECSD Staff    Mail     Telephone     Fax (fax #)     Interpres: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water ive Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zi ient Sample ID    Www   Www   X     Www   X   Www   X     Www   Www   X     Www	mpler Signature  (W), Groundwater (GW), Surfac  Acetate, (6) Methanol, (7) Sodi  (7) Sodi  (8) (7) Surfac  (9) (7) Surfac  (1) (2) (8) (9) (9) (9) (9) (9) (9) (9) (9) (9) (9	e Water (SW), Waste um Bisulfate, (§) Sod Bisulfate, (§) Cod Analyses of Types **	Sampler Phone #  Sampler Phone Phone #  Sampler Phone Phon	219-391-84  2340.com / jwojcik@ea  cscrvcd  Sn+H8	66 x240 sstchicago.com
Mail       Telephone       Fax (fax #)	W), Groundwater (GW), Surfac Acetate, (6) Methanol, (7) Sodi   /£//8   Collected  /£//8   Collected	c Water (SW), Waste um Bisulfate, (\$) Sod Bequested analyses and Preservative C Types ***	X] e-mail (address) <u>Ingeros@eastchi</u> e Water (WW), Other (specify) lium Thiosulfate, (9) Hexane, (U) Unpu  1  1  1  1  1  1  1  1  1  1  1  1  1	cserved  Sn+Hg  Sn+Hg	sstchicago.com
Client Sample ID  Client Sample ID  Www X  Water (D)  Wipc, Dinking Water (D)  Autive Types: (1) HNO3, (2) H2SO4, (3) HCJ, (4) NaOH, (5) Zinc  Water (D)  Www X  Www X  Www X	Wy, Groundwater (GW), Surface Acetate, (6) Methanol, (7) Sodii Date Collected   /£/ 8   Collected	E Water (SW), Waste um Bisulfate, (8) Sod Requested Analyses and Preservative C Types **	ilum Thiosulfate, (9) Hexane, (U) Unprilium Thiosulfate, (10) Hexane, (U) Unprilium Thiosulfate, (10) Hexane, (U) Unprilium Thiosulfate, (U) Unp	Served S. Ch. Ch. Mi, Mo, Ph. TI	
Client Sample ID  (e)  WWW Matrix*  WWW Matrix*  Composite	Date Collected  Date Collected  Oxiv	Requested Analyses Container Preservative Types **	TSS, TDS, FI, CI, SO4  Total P, COD, WH4  Phenols  Avail CN (1677)	Sn+Hg NJ,Mo,Pb, TI	
) ×	8 8//3/1	1	) / /		For Lab Use Only
MM		5 U,1,2,	×	_	10-
	1/8/18 8: A	3 2	X		102
T T T T T T T T T T T T T T T T T T T					
Possible Hazard Identification [] Hazardous [] Non-Hazardous [] R	Radioactive	Sample Disposition	ition [] Dispose as appropriate []	Return [] Archive	
2.00	Relinguished By (signature)  Wellinguished By (signature)	Date/Time    Date/Time	4.4	e Deter 1	Date/Time  9-6-6-1030  Date/Time
Sample temperature upon receipt in degrees C =	elinquished By (signature)	Date/Time	Received for Lab Sy (8)	(a) mame)	Date/Time // 20

# Microbac Laboratories, Inc. - Chicagoland





# SUBCONTRACT ORDER 18A0340

|--|--|

Page 10 of 10

**SENDING LABORATORY:** 

Microbac Laboratories, Inc. - Chicagoland

250 West 84th Drive

Merrillville, IN 46410

Phone: 219.769.8378

Project Manager: Dave Bryant

**RECEIVING LABORATORY:** 

Microbac - BLT

2101 Van Deman Street

Baltimore, MD 21224-6697

Phone: (410) 633-1800

Project Info:

Project No:

Project Name:

**ECSD Industrial Monitoring** 

Industrial Monitoring #901

Project Type: Project Location: East Chicago Sanitary District - East Chicago, IN

Report TAT: 4 ENV-DrinkingWater Indiana

Due: 01/15/2018 23:59

Sample ID: 18A0340-02

**Matrix: Aqueous** 

Sampled: 01/08/2018 08:45

**Analysis** 

Method

**Analysis Due** 

**Expires** 

**CN 1677 SUB** 

Cyanide, Available

**EPA OIA-1677** 

Client:

01/15/2018 23:59

01/22/2018 08:45

Containers Supplied:

B: 500 mL amber glass, Preserved - NaOH

Released By

Date

Received By

Date